CREATOR

VOLUME 22 NUMBER 2

# OF TOADS & CLOUDS

*Ascribe ye strength unto God . . .*
*His strength is in the clouds (Psalm 68:34 KJV).*

**Friday, June 30, 2 p.m. at Bashful Bayou**

Two toads are sitting in a peaceful back-water singing together.

"T r i l l l

decreases. Cold air can't hold as much water vapor as warm air, so if moist air cools down, tiny droplets will form, creating clouds." [2]

"It must be 90° F (32° C) in this swamp, Earle! How does the air cool down enough to form those cumulus clouds?"

"Well, Buford, cumulus clouds form almost a mile above us. Up there, the air is much cooler than down here. As you ascend through the atmosphere, the temperature gets colder and colder.[3]

"How do you know so much, Earle?" questions Buford.

There is a long pause as Earle thinks. "I'm not sure; I just sense there's something different about me this afternoon."

"Do you think that Jesus, the Maker of all toads, has something to do with it, Earle?"

"Could be; what do you think Buford?"

"He is the Creator of everything, not just toads," exclaims Buford, "and extremely wise—maybe He's revealing this to us for some reason."

After another pause to consider what Buford said, Earle continues: "As the sun heats the earth, cumulus clouds are formed when huge bubbles of warm, moist air rise up, cooling as they go. Now, water vapor needs something to grab onto in order to form the trillions of droplets that make up a cloud. Dust particles in the atmosphere seem to do the trick. It's similar to dew forming on grass in the morning, Buford—the bits of dust in the air act like 'blades of grass.'

"A small cumulus cloud may hold as much as 500 tons of water! Despite this much moisture, however, the cloud may survive only 15 minutes before it disappears. That's because it starts to evaporate almost as soon as it forms."

"I don't know, those clouds up there aren't going away," protested Buford. "In fact,

they seem to be getting bigger and bigger!"

Both toads peer at the thunderhead beginning to form.

"That's called a *cumulonimbus* cloud or thunderhead, Buford. Under special circumstances, when enough heat and moisture rise up from the ground, cumulus clouds join to make a much bigger cloud."

"Why is it called cumulonimbus?" asks Buford.

"'*Cumulo-*' means '*puffed up*'; '*nimbus*' means that the cloud produces *rain*."

"So, is it going to rain?" Buford probes further.

"Most likely. If that dark cloud continues to grow, rain is not the only thing it's going to do. A large cumulonimbus cloud can generate thunder and lightning, maybe even hail and tornadoes. The more massive the cloud gets, the more violent and stormy its insides become."

"Like when people eat spicy Mexican food, Earle?" Buford remarks with a toady grin.

"No, more explosive than that. It's thought that some thunderheads have winds blowing straight up their centers in excess of 100 miles per hour (160 kilometers per hour). This turbulent air allows water inside the cumulonimbus to freeze, forming snow and hailstones. You see, Buford, the flat bottom of this thunderhead—which is one-half mile off the ground—is much warmer than at its top, stretching ten miles (16 km) up into the

2 The temperature at which a cloud forms is called the *dew point*.
3 Air temperature decreases almost 20° F for every mile increase in altitude, or 6.5° C for every kilometer.

atmosphere. As strong vertical winds blow water up through the thunderhead, it encounters temperatures far below freezing at the top, causing the water in the air to turn to ice."

Earle and Buford sit at the pond's edge for another 45 minutes, discussing the internal physics of storm clouds. During that time, the swamp's gentle afternoon breeze steadily changes into strong gusts of wind, but at first they do not notice. It's only when a giant cypress tree begins to sway and howl that the toads become concerned. The billowing thunderstorm has filled the sky, blocking out the sun, and turning the pleasant afternoon dark and ominous. Caution soon moves our inquisitive anurans[4] to hop away in search of underground shelter. Just as Buford enters the safety of his terrestrial home, one last glance skyward reveals a brilliant flash of blinding white light silhouetted against an eerie green cloud. There is something else Buford has never

seen before—a funnel-shaped cloud coming down from above. Within their burrows, Earle and Buford feel the ground quake. Several horrifying minutes pass as the earth seems to be torn apart. For the first time in their short lives, the toads realize the awesome power of their Creator, witnessed in the clouds.

4 *Anuran* is the scientific term for toads and frogs.

**Saturday, July 1 . . . 10:30 a.m.**

"Say, Buford, did you hear about Clyde?" (Clyde is another toad who lives in the meadow.)

"No, what happened to him?" Buford quickly inquires.

"Got swept away by a tornado that hit the northern part of the swamp yesterday," explains Earle. "Ended up in Lockfield County, 30 miles to the east! Townspeople say it rained fish and frogs there last night."

"Can that *really* happen, Earle?"

"Yep, tornadoes can suck fish right out of the water."

"Poor Clyde!" exclaims Buford.

"Well, I've heard he's doing OK," reassures Earle. "You know, Clyde always wanted to see the world—I guess he got his wish."

**Sunday, July 2 . . . 12:16 p.m.**

Buford is sitting just outside his underground home covered in a strange white goo having the distinct odor of dandelions.

"Are you ready to learn more about clouds this aft . . . Earle begins to ask. "What are you doing?" protests Earle out loud.

"You know, I been soaking in this 'wart lotion' today—I'm trying to get rid of them."

"Buford, *you're a toad*. You'd look positively silly without warts!"

"You really think so, Earle?"

"Yes, I do, Buford. Jesus made you that way for a reason." Earle tries not to burst out laughing.

Buford hops over to the pond to wash off. He's back within minutes. "So what's happening 'up above' this afternoon?" questions Buford.

Delicate white clouds fill the great blue expanse above as the toads look up to ponder their appearance.

"Wow, you can see all three types of *high clouds!*" remarks Earle.

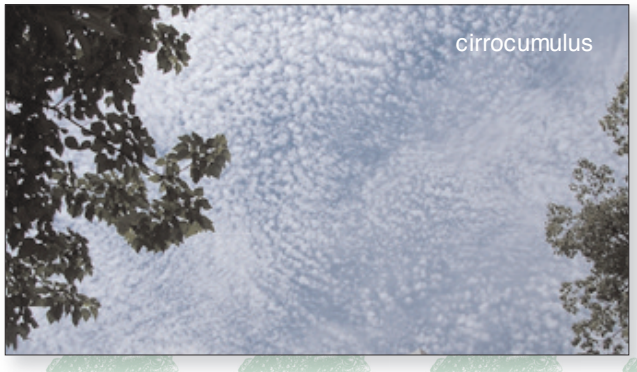
"High clouds?" asks Buford.

Earle explains. "There are two ways of identifying the *ten basic kinds of clouds*: by *how high* they are in the atmosphere and by their *shape*. Back in 1803, Luke Howard, an English naturalist, discovered that God places clouds at roughly three different heights, or altitudes, above the ground. *High clouds*, like the ones we're seeing this

afternoon, are generally four miles (six km) above the earth or greater. *Middle clouds* form at altitudes of one-and-a-half to four miles (two to six km), and *low clouds* are found below one-and-a-half miles (two km)."

"Oh," mutters Buford, squinting skyward.

"The clouds we're seeing now are really high up in the sky—maybe four, five, six miles above us. There are, in turn, three types of high clouds: *cirrus* (SIR - us), *cirrocumulus* (SIR - oh - KYOOM - you - luss), and *cirrostratus* (SIR - oh - STRAH - tuss).[5] Do you see those wispy, thin and white clouds that seem to be falling, Buford?"




5 Luke Howard gave clouds Latin names; each name describes the cloud's height and shape.

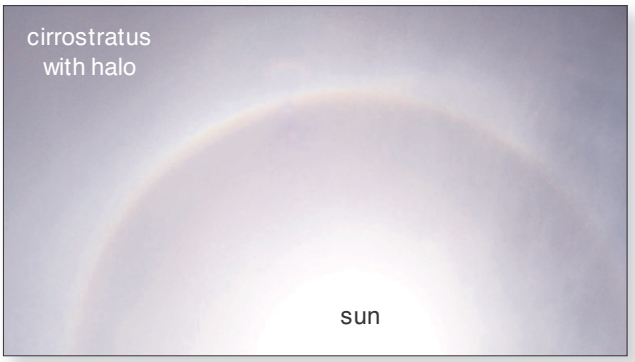
Spotting them high above, Buford eagerly croaks, "Yeah!"

"Well, those are *cirrus* clouds. They're composed entirely of ice crystals. They may not appear to be moving because they're so far away, yet they're constantly falling back toward earth. Jesus keeps the ice crystals of cirrus clouds aloft using very strong winds."

Earle turns his head slightly to the right. "Those clouds that look somewhat lumpy and rippled are *cirrocumulus*. And if you look toward the south, Buford, you'll see a whitish, streaky appearance to the sky."

"I see it, Earle, I see it!" Buford responds with great enthusiasm.

"Those thin sheets of clouds are the




*cirrostratus*. They sometimes cover the entire sky with a milky haziness."

"Hey, Earle, it looks like the sun has a halo around it; how come?"

"Buford, that halo is caused by ice crystals. The ice crystals act like tiny prisms that bend the sunlight passing through the clouds. Therefore, a *halo* around the sun or the moon is one way of identifying cirrostratus clouds.

"All high clouds allow sunshine and moonlight to pass through them, and, as a result, high clouds cast no shadows on the ground. At night, you should be able to see

bright stars shining through the clouds as well.

"The temperature where these clouds form is usually well below freezing—minus 15° F (minus 26° C) or colder. So, they're mostly composed of ice crystals, though it's possible to find supercooled water droplets in cirrostratus clouds as well."

"Brrrr!" retorts Buford. "I'll stay here in the swamp where it's warm."

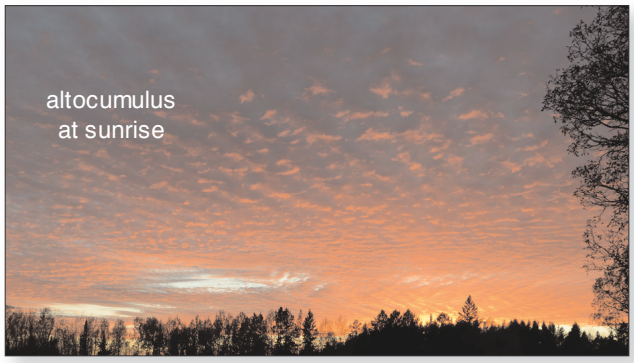
**Monday, July 3 . . . 6:10 a.m.**

Earle waits outside Buford's burrow. Two sleepy amphibian eyes peer from the darkness of his home. "Did you get a good sleep, Buford?" Earle gently inquires.

"Yeah, 'cept I was up pretty late last night singing with the gang," Buford yawns. "So what's happening in the sky this mornin', Earle?"

"Great sky—we can see *middle clouds*, *altocumulus* and *altostratus*."

"I'm confused," Buford yawns again.


altocumulus
at sunrise

"We've seen *cumulus* clouds less than two miles up, cirro*cumulus* clouds five miles high, and now you say that we have alto*cumulus* clouds!"

"Don't feel bad, Buford . . . let me explain. Remember yesterday, when I said that there are *ten basic types of clouds*, and that we can identify them by *height* and by *shape*?"

"Yeah," responds Buford with some hesitation, "I think so."

"Well, the word 'cumulus' does not describe a cloud's height, but its shape. '*Alto*', on the other hand, indicates how high the cloud is—one-and-a-half to four miles (two to six km) above the earth. '*Cirro*' describes a *high cloud*.

"Just as there are three different altitudes at which clouds are found, there are three general shapes to clouds: *cumulus*, *stratus*, and *cirrus*. If you recall, '*cumulus*' literally means 'puffed up.' Any cloud that has a patchy or lumpy look to it is a cumulus-type cloud, no matter what height it's at."

"Say, God made us lumpy!" exclaims Buford with a wry smile.

"True, but you're not able to float around in the air," retorts Earle. "Notice the many white, puffy clouds lined up in rows?"

"Yeah," says Buford.

"Those are *altocumulus*," explains Earle. "*Stratus* clouds are those that form layers, and are thus known as '*layered clouds*.' The word *cirrus* is Latin for '*feathery*'; a good description for high clouds. Unlike cirrus clouds, altocumulus *do cast* a shadow on the ground. They also can produce rain known as *virga*. Whenever rain falls from a cloud but fails to hit the ground, it's known as virga.

altostratus
at sunrise

"Those thin, layered clouds just to the east are *altostratus*. They also produce virga. The temperature of altocumulus and altostratus is usually well below freezing, but both types

of clouds are composed of water droplets, not ice. By the way, the sun and the moon are seen as bright spots through altostratus clouds, but we don't see a halo as we do with cirrostratus. . . . Say Buford, do you want to get some breakfast?"

"Yum, yes I do!" exclaims Buford with much delight. "Have you seen any slugs?"

**Tuesday, July 4 . . . 1:30 p.m.**

"Boy, do I love to eat," remarks Buford.

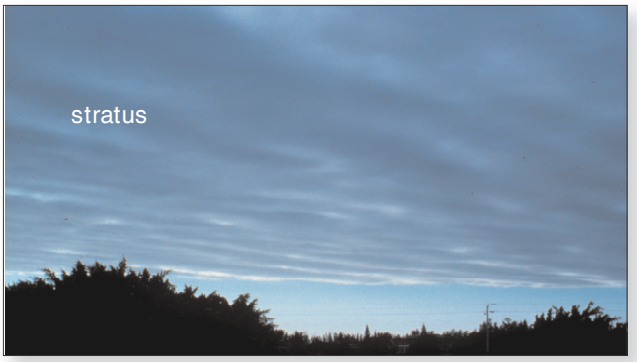
"I know, Buford," responds Earle. "Say, I don't want to embarrass you, but there's a worm hanging out of your mouth! Do you think you could be a little less messy?"

"Oh, sorry!" Buford becomes sheepish, and he quickly swallows the worm.

"I think we might get rain today," quips Earle.

Buford's eyes get bigger than normal. "Are we going to have another tornado, Earle?"

"No, Buford," reassures Earle. "The clouds we're seeing are *stratocumulus* and




*stratus*—they're harmless *low clouds*."

"Low clouds, they're the ones below one-and-a-half miles (two km), right?"

"That's right, Buford," continues Earle. "Do you see the part of the sky that's bland and gray?" Earle points north with his webbed toes.

"Yeah," says Buford.

"That low-lying, sheetlike cloud is called *stratus*," explains Earle. "It has no distinct shape; it creates a formless gray or bluish cloud cover. Sometimes stratus clouds are so low they touch the ground—this is known as *fog*. Stratus clouds are composed of tiny water droplets, and sometimes they produce intermittent drizzle."

"Hey, Earle, did you know it takes one million cloud droplets coming together to make one raindrop?" quizes Buford.

"That's right, Buford. And low-level stratus are different from cirrostratus and altostratus because the sun and moon can't shine through them—stratus clouds give us gray and sunless, drizzly days."

As the afternoon wears on, the sky becomes completely covered with thick, dark gray clouds, and it starts to rain. Earle and Buford retreat to Earle's burrow.

Buford pokes his warty little face out the hole. "Say, Earle, it's really raining hard. I thought you said stratus clouds produce drizzle?"

"They do, but what you're seeing now aren't stratus, but *nimbostratus* clouds,"

explains Earle. "And, if you recall, when we add the word '*nimbus*' or '*nimbo*' to a cloud's name, it's usually a heavy rain maker. Nimbostratus can also produce snow. These clouds look like stratus—they have no distinct shape, just formless sheets of gray—'cept nimbostratus are much darker gray than stratus because they contain a lot more water. We're fortunate, Buford, because today we've seen three of the four *low clouds—stratus*, *stratocumulus*, and *nimbostratus*."[6]

"Looks like it might rain for hours, Earle. Why don't we take a nap?"

"That's fine with me, Buford, but please don't snore."

"I don't snore,"protests Buford.

"Oh, yes, you do!" insists Earle. "Every time you eat worms you snore . . . ."

**Wednesday, July 5, at Bashful Bayou . . . around 2:00 p.m.**

The sun is shining brightly, and the sky over the swamp is dotted with friendly cumulus clouds.

"Christ Jesus—the Creator of toads—must be someone really special to have made all the beautiful and fascinating clouds we've seen this week, Buford," remarks Earle. "He must be exceedingly beautiful and powerful!"

"I couldn't have said it better," exclaims Buford proudly. "Hey, why don't we sing to Him, Earle?"

"Great idea, my friend!"

Just as Earle and Buford are getting ready to begin a chorus of "Great Is Thy Faithfulness," the same other-worldly feeling once again visits the mountain valley, as it had exactly five days earlier.

"T r i l l l

many "icebergs" floating in the heavens, for we don't see much of the invisible water that forms them. God uses many different clouds to bring shade and nourishing rain to His creatures, thus demonstrating *His kindness!*

The story of the toads is a fictional account, but it reminds us that *God is also mysterious*—we cannot know Him unless He manifests Himself to us. Without divine revelation, our Heavenly Father cannot be understood anymore than Earle and Buford can comprehend meteorology on their own.[8] Thankfully, God, through His Spirit, discloses Himself in His creation and His Word (Psalm 19), in history (Acts 17:26), and especially in His Son (Hebrews 1:2); without these, we would be as ignorant of the character and plan of our Creator as a common toad.

All that we study and comprehend in this world—through science and history—comes to nothing if it doesn't honor Christ Jesus, our *Savior and Lord*. A scientist can examine the water cycle in great detail (water evaporates from the ocean and into the atmosphere, forms clouds that bring rain to plants and animals worldwide, and reenters the sea via streams and rivers). But, this knowledge won't save him from the storm of God's wrath against sin. A day is coming when the Son of Man will judge all people, for Jesus will soon return to earth, not as Savior, but as *Judge* and *Executioner* (Revelation 1:7; 19:15).

The Bible says that each of us has sinned in dishonoring our God (Isaiah 53:6; Romans 3:23) and, as a result, *we all deserve hell*. Who can be saved from such a horrific destiny? Only those who are united to Christ Jesus as Lord and Savior through love and faith in Him; only those who flee and follow—*flee* their sins and *follow* Jesus, will be saved. We must believe that Christ died on a cross for our sins, and repent of those sins. Being "good" is not enough because no one can ever live up to God's perfect standard of holiness. We cannot honor Him as His friend by insisting that the friendship be on our terms—no, it must be on His! True surrender of our lives, through faith in Christ, is what leads to eternal life. ❑

8 Meteorology is the study of weather.

*"And then the sign of the Son of Man will appear in the sky, and then all the tribes of the earth will mourn, and they will see the Son of Man coming on the clouds of the sky with power and great glory" (Matthew 24:30).*

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